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Saegusa

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(54) **EMERGENCY CALL SYSTEM**

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(22) Filed: **Dec. 10, 1997**

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(52) **U.S. Cl.** **455/404**; 455/457
(58) **Field of Search** 455/404, 421, 455/456, 457; 342/357.09, 357.1, 357.07; 340/988, 990, 460, 692; 379/368

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(57) **ABSTRACT**

Upon occurrence of any emergent state for a user, the user depresses an emergency call button of his portable telephone to transmit a signal therefrom to an emergency call center, whereby user ID and positional information of the portable telephone obtained on the basis of signals from GPS satellites are sent to the emergency call center. DGPS generates a correcting signal out of the positional information based on both the signals from the GPS satellites and the positional information of a fixed station, and then transmits such correcting signal to the emergency call center. In response to a terminating call from the portable telephone and reception of the user ID, the emergency call center outputs the individual information of the user to a display device and corrects the positional information of the portable telephone in accordance with the correcting signal, and makes contact with a hospital or a fire station while displaying the map information of the vicinity around the corrected position on the display device.

6 Claims, 8 Drawing Sheets

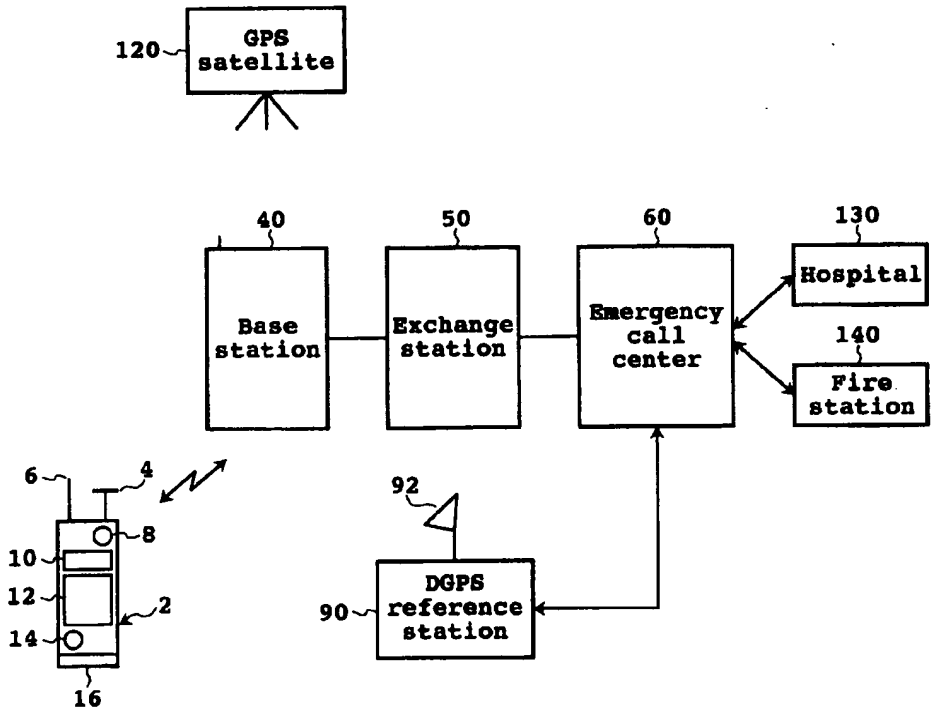


FIG. 1

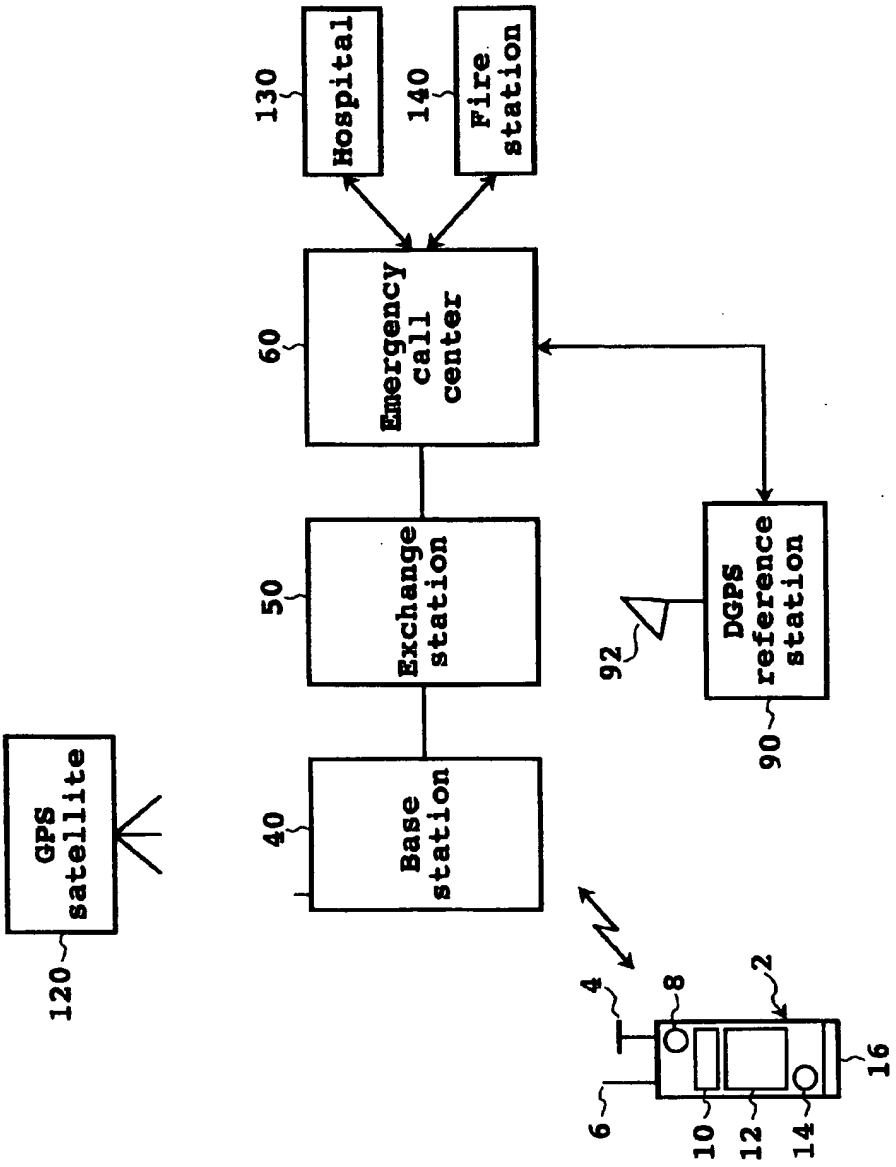

130
Hospital
140
Fire station
60
Emergency call center
50
Exchange station
40
Base station
92
DGPS reference station
90
GPS satellite
120
4
8
2
16
6
10
12
14

FIG.2

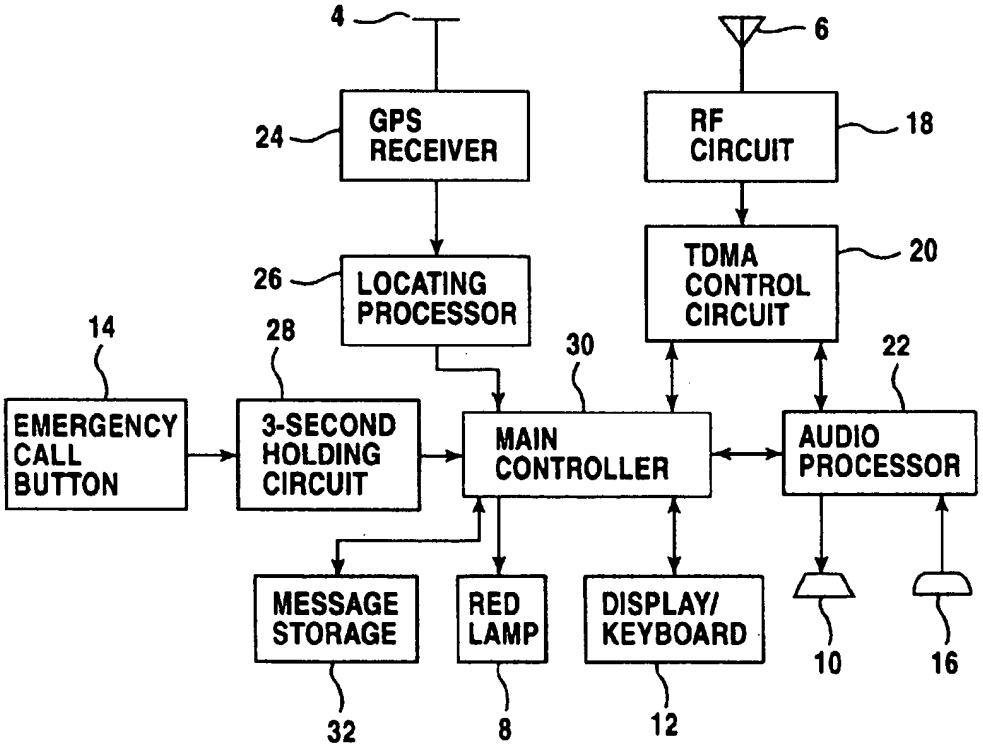

4
6
24
GPS RECEIVER
RF CIRCUIT
18
TDMA CONTROL CIRCUIT
20
26
LOCATING PROCESSOR
14
28
30
22
EMERGENCY CALL BUTTON
3-SECOND HOLDING CIRCUIT
MAIN CONTROLLER
AUDIO PROCESSOR
MESSAGE STORAGE
RED LAMP
DISPLAY/ KEYBOARD
10
16
32
8
12

FIG. 3

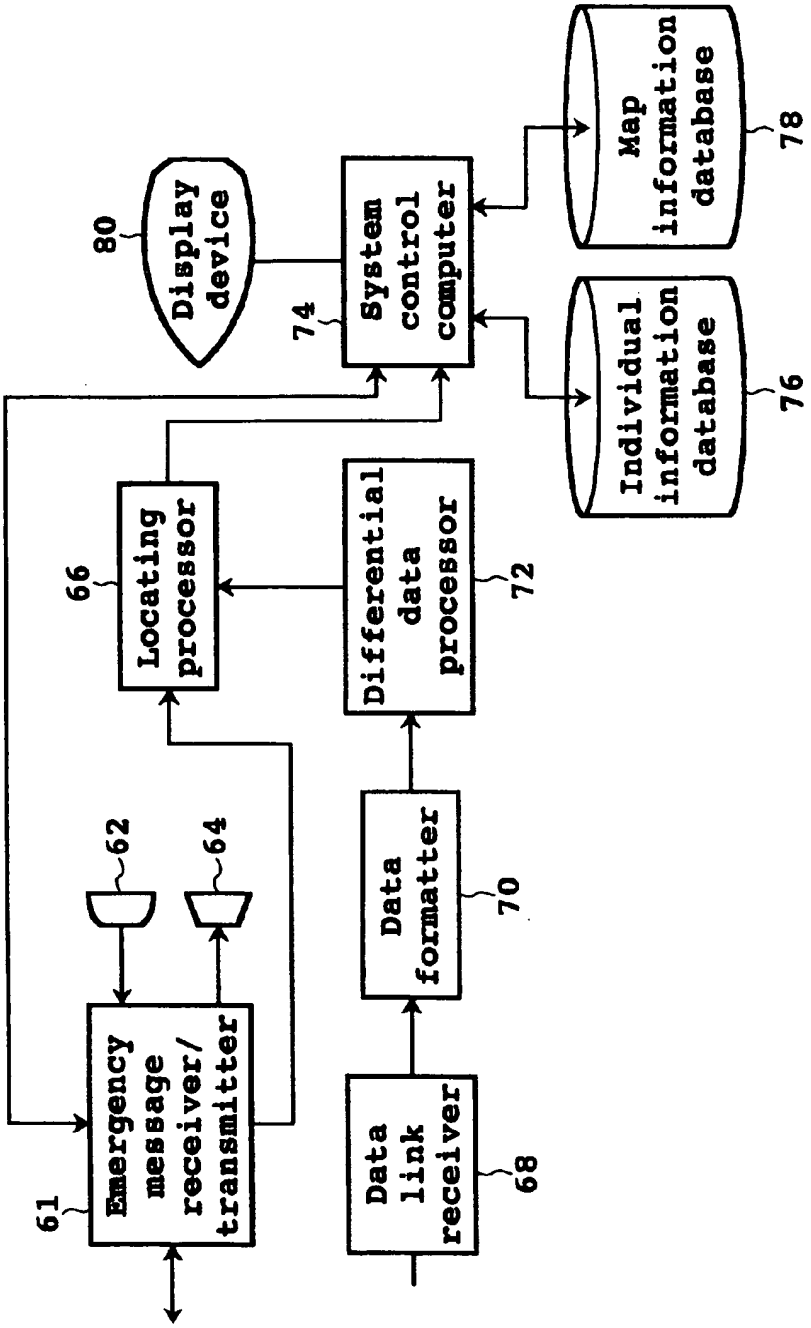

Map information database
78
Individual information database
76
80
Display device
System control computer
74
Locating processor
66
Differential data processor
72
62
64
Data formatter
70
Emergency message receiver/ transmitter
61
Data link receiver
68

FIG. 4

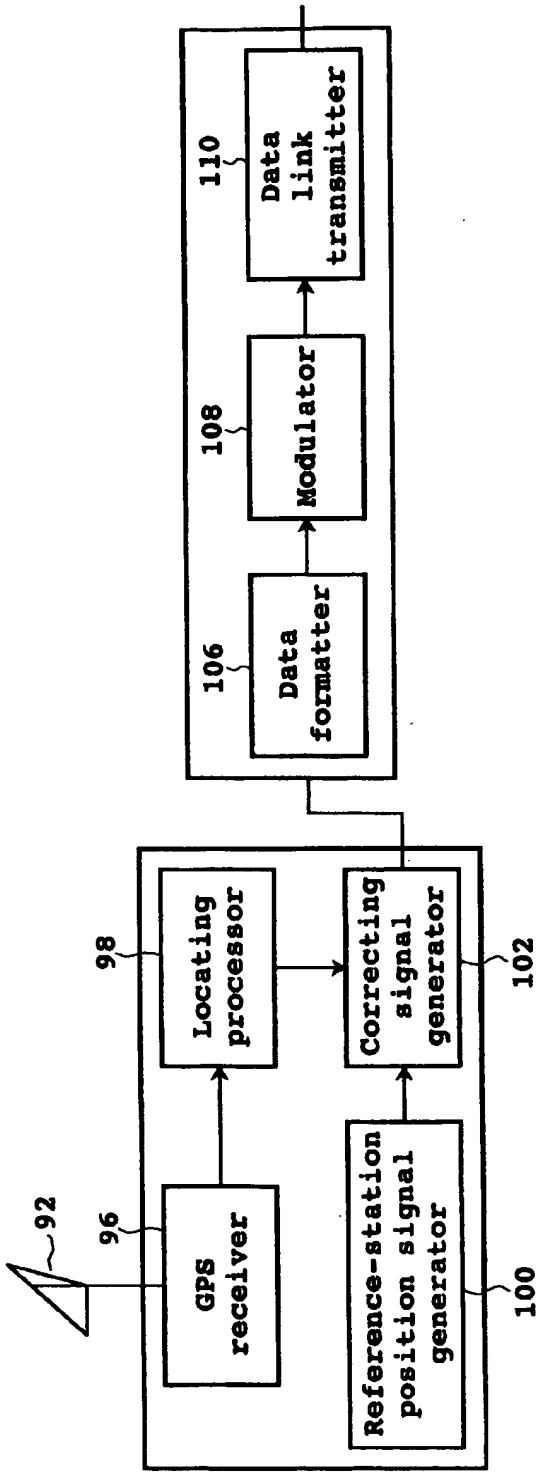

92
96
GPS receiver
98
Locating processor
Reference-station position signal generator
100
Correcting signal generator
102
106
Data formatter
108
Modulator
110
Data link transmitter

FIG. 5

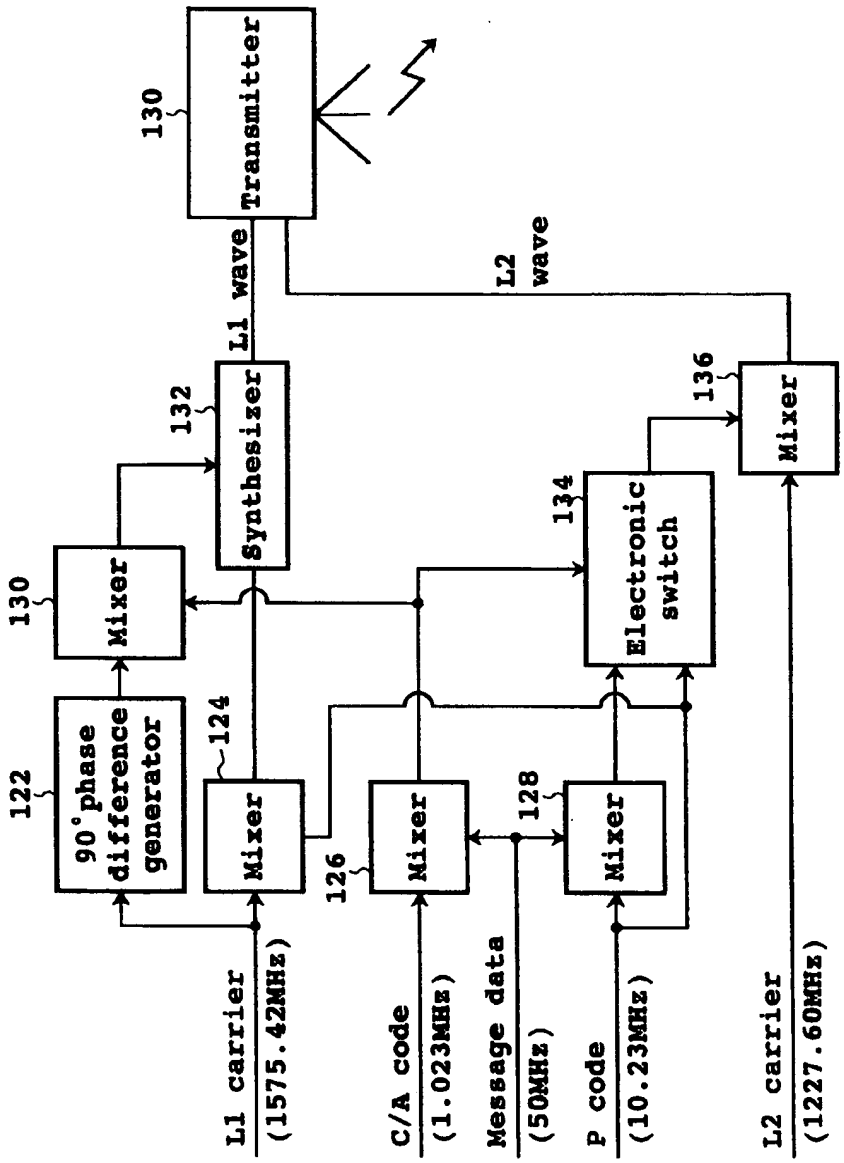

130
Transmitter
L1 wave
L2 wave
132
Synthesizer
136
Mixer
134
Electronic switch
130
Mixer
122
90° phase difference generator
124
Mixer
126
Mixer
128
Mixer
L1 carrier (1575.42MHz)
C/A code (1.023MHz)
Message data (50MHz)
P code (10.23MHz)
L2 carrier (1227.60MHz)

FIG. 6A

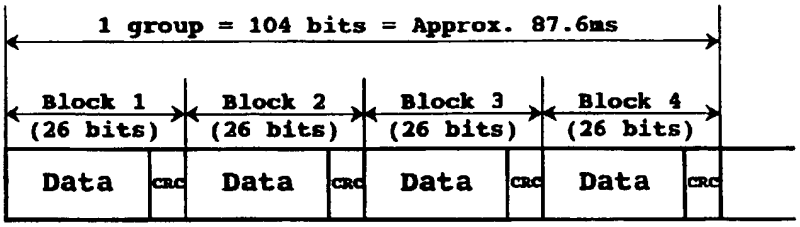


FIG. 6B

Group type
Block 1: Program ID
Block 2: Contents of data services
Block 3,4: Detailed Contents of services

FIG. 6C

Block 2
Setting of emergency call system

FIG. 6D

Block 3,4
DGPS correcting signal

FIG. 7

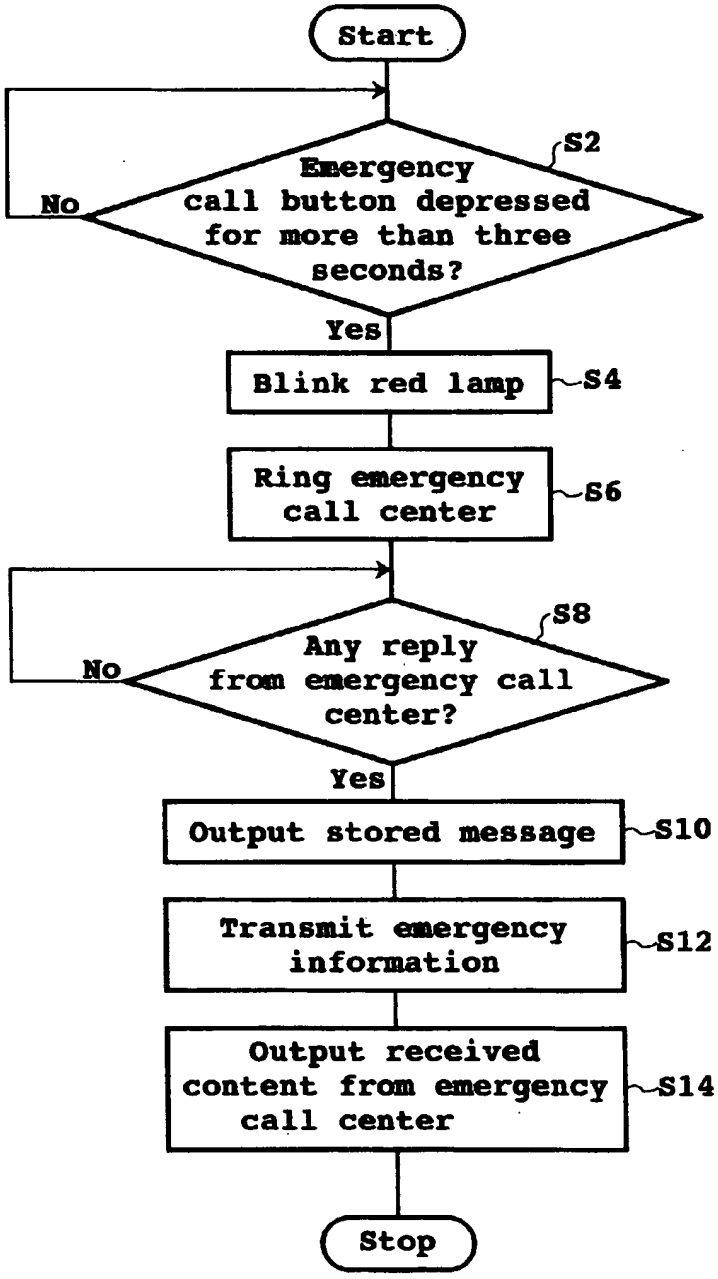
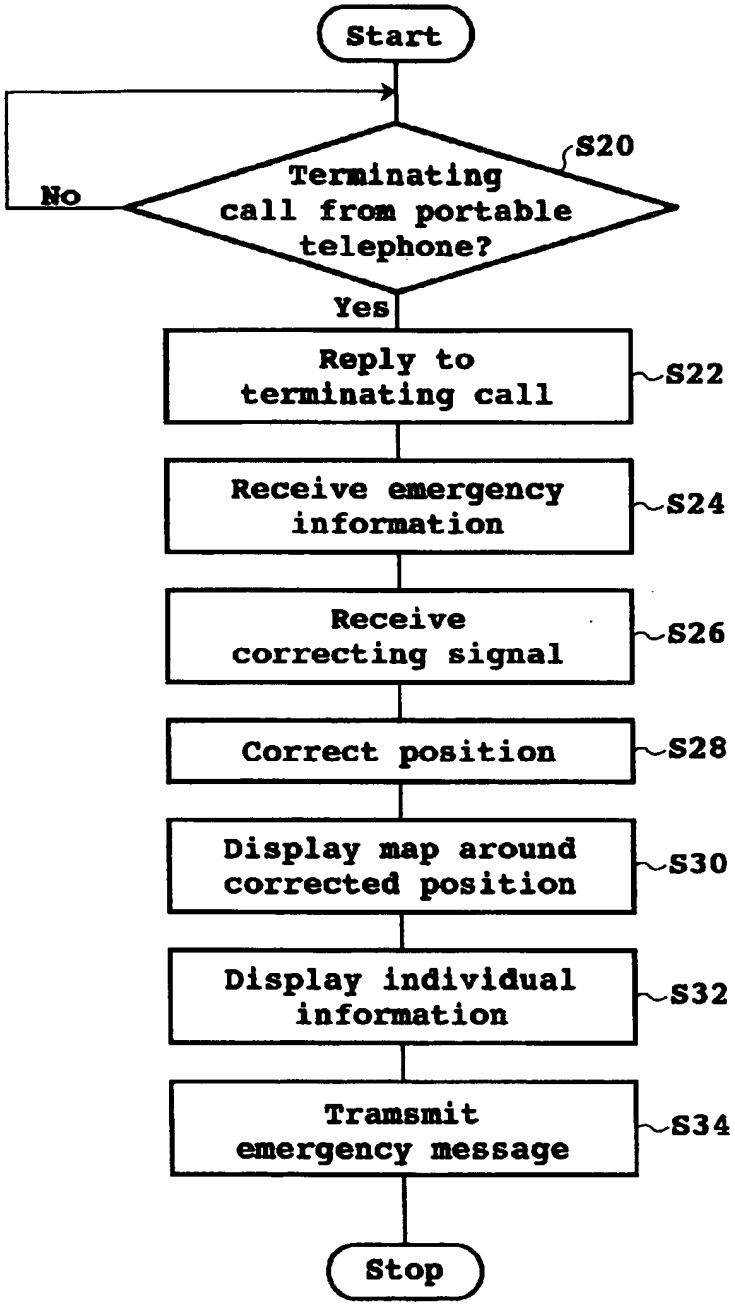

Start
S2
Emergency call button depressed for more than three seconds?
No
Yes
Blink red lamp
S4
Ring emergency call center
S6
S8
Any reply from emergency call center?
No
Yes
Output stored message
S10
Transmit emergency information
S12
Output received content from emergency call center
S14
Stop

FIG. 8


Start
S20
Terminating call from portable telephone?
No
Yes
Reply to terminating call
S22
Receive emergency information
S24
Receive correcting signal
S26
Correct position
S28
Display map around corrected position
S30
Display individual information
S32
Tramsmit emergency message
S34
Stop

EMERGENCY CALL SYSTEM

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to an emergency call system adapted for notifying an emergency call center about occurrence of an emergent state to ask for rapid measures to be taken.

2. Description of the Related Art

For any aged person or outpatient (of heart disease for example), there may occur some emergent situation inclusive of sudden attack of illness while the person is out. Therefore, upon occurrence of any emergent state, it is essentially necessary for him to receive an exact and quick primary measure and also to make fast contact with an ambulance or hospital to take a secondary measure.

It has been customary in the related art heretofore to employ a system where, upon occurrence of any emergent state on a patient or aged person in a hospital or old-people's home, the person depresses a button of a portable audio oscillator carried by himself to generate an audio signal, which is then received by any of a plurality of receiving alarm units installed in a relevant supervisory region, and a notice signal inclusive of identification data to specify the received point is transmitted to a center station.

In this system, a contact terminal unit capable of making contact with the audio signal generation point is connected to the center station via a contact unit, so that communication is rendered possible between the center station and the spot. However, there exists a problem in the known emergency call system that, although it is possible to deal with any emergency that occurs in the supervisory region where the system is installed, such as in a hospital or old-people's home, a proper measure fails to be performed with regard to any emergent state caused when the person is out of the region.

Another problem is also existent in that any outpatient who attends a hospital for medical treatment without being hospitalized, such as a heart-disease patent or aged person, is unable to report an emergent state caused during his being out, whereby a required rapid measure fails to be taken.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide an emergency call system which enables any person to report an emergent state for receiving a rapid measure.

In accordance with an aspect of the present invention, there is provided an emergency call system having an emergency call mobile station to transmit emergency information and an emergency call center to receive the emergency information. The emergency call mobile station comprises a locating means for detecting the position of the self station and generating first positional information; an emergency switch means to be turned on or off; an emergent state detection means for outputting an emergent state detection signal when the emergency switch means is in its on-state; and a transmitting means for transmitting to the emergency call center the emergency information which includes both the first positional information and identification information to specify the user of the emergency call mobile station.

The emergency call center comprises a map information database where map information is stored; an individual information database where individual information relative to the user is stored; a positional information receiving means for receiving the first positional information included in the emergency information; a display means for displaying the information; a position display means for displaying, on the display means, the map information around the position of the emergency call mobile station by referring to the map information database on the basis of the first positional information; and an individual information display means for displaying, on the display means, the individual information of the user by referring to the individual information database on the basis of the identification information included in the emergency information.

Preferably, the emergency detection means is so structured as to output the emergency detection signal when the emergency switch means is turned to its on-state after a lapse of a predetermined time, whereby it is rendered possible to eliminate misreport to the emergency call center that may otherwise be caused by an erroneous manipulation of the emergency switch means.

More preferably, the emergency call mobile station further comprises a message storage means for storing a message, a speaker for emitting an audio output, and a message output means for outputting the message to the speaker in response to the emergency detection signal. Thus, an exact and rapid primary measure can be taken upon occurrence of an emergent state to the user.

According to the present invention, the user of the emergency call mobile station turns on the emergency switch means upon occurrence of an emergent state. When the emergency switch means is in its on-state, the emergent state detection means outputs an emergent state detection signal. In response to this emergent state detection signal, the transmitting means transmits to the emergency call center the emergency information which includes both the first positional information obtained from the locating means and the identification information to specify the user of the relevant emergency call mobile station.

Then the emergency information receiving means receives the first positional information, and the position display means displays the map information around the position of the emergency call mobile station on the display means, whereby the position of the user is specified. Meanwhile the individual information display means displays the individual information of the user on the display means, so that a rapid measure can be executed for the user.

The above and other objects, features and advantages of the present invention and the manner of realizing them will become more apparent, and the invention itself will best be understood from a study of the following description and appended claims with reference to the attached drawings showing some preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an overall block diagram of an emergency call system in an embodiment of the present invention;

FIG. **2** is a functional block diagram of a portable telephone included in FIG. **1**;

FIG. **3** is a functional block diagram of an emergency call center in FIG. **1**;

FIG. **4** is a functional block diagram of a DGPS reference station in FIG. **1**;

FIG. **5** is a functional block diagram of a GPS satellite in FIG. **1**;

FIG. **6**A to FIG. **6**D show an exemplary format of a correcting signal;

FIG. **7** is a flowchart showing a processing routine of the portable telephone in FIG. **1**; and

FIG. **8** is a flowchart showing a processing routine of the emergency call center in FIG. **1**.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinafter a preferred embodiment of the present invention will be described in detail with reference to the accompanying drawings.

FIG. **1** is an overall block diagram of an emergency call system in the embodiment of the present invention. As shown in this diagram, the emergency call system comprises a portable telephone or cellular telephone **2**, a base station **40**, an exchange station **50**, an emergency call center **60**, a differential GPS (DGPS) reference station **90**, a GPS satellite **120**, a hospital **130** and a fire station **140**.

FIG. **2** is a functional block diagram of a portable telephone included in FIG. **1**. The portable telephone **2** has, in addition to normal functions of an ordinary portable telephone, some special functions to execute proper processes upon occurrence of an emergent state, including instruction to the user of the portable telephone to take a primary measure, transmission of occurrence of an emergent state and positional information of the user to an emergency call center **22**, and instruction from the emergency call center **22** to the user. The portable telephone **2** comprises a GPS receiving antenna **4**, a transmitting/receiving antenna **6**, a red lamp **8**, a speaker **10**, a display/keyboard **12**, an emergency call button **14**, a microphone **16**, an RF circuit **18**, a TDMA control circuit **20**, an audio processor **22**, a GPS receiver **24**, a locating processor **26**, a 3-second holding circuit **28**, a main controller **30** and a message storage **32**.

The GPS antenna **4** serves to receive signals from the GPS satellites **120**. The transmitting/receiving antenna **6** serves for transmission of radio waves to and reception of the same from the base station **40**. The red lamp **8** is turned on to indicate that occurrence of an emergent state of the user has been reported to the emergency call center **60**. This is not limited to the red lamp **8** alone, and may be any other means such as a bell for example to inform nearby persons of the emergent state.

The speaker **10** serves to emit sound waves to the outside. The display/keyboard **12** is used for displaying characters and so forth and also for inputting a dial number or the like so as to function as a portable telephone also. The emergency call button **14** is depressed by the user upon occurrence of an emergent state. The microphone **16** inputs sound waves, and the RF circuit **18** is used for demodulation of a channel received from the base station **40** and also for modulation to transmit traffic data through the communication channel allocated to the base station **40**.

The TDMA control circuit **20** generates, in response to the instruction from the main controller **30**, traffic data of audio signal or data signal in a time slot allocated to the portable telephone **2** by the base station **40**. The audio processor **22** executes, by VSLP or the like, audio compression or expansion of the audio signal input from the microphone **10**. The GPS receiver **24** demodulates the signal of the channel of the specified GPS satellite **120** out of the entire signals received by the GPS antenna **24**. The locating processor **26** calculates the position on the basis of the signals received from three or more GPS satellites **120** and then outputs positional information (latitude and longitude).

Although the calculation in this embodiment is executed by satellite navigation from the positional information based on the signals from the GPS satellites **120**, some other radio navigation may also be adopted, such as approach radio navigation which determines the position by receiving positional information from a ground sign post. The 3-second holding circuit **28** activates an emergent state detection signal after detecting that the emergency call button **14** has been depressed continuously for more than a predetermined time, e.g., three seconds. The reason for providing the 3-second holding circuit **28** here resides in preventing any misreport to the emergency call center **60** that may otherwise be caused by erroneous depression of the button.

The main controller **30** executes control actions when the emergent state detection signal is activated, in such a manner as to perform operations of communicating with the base station **40** to transmit the user ID (e.g., portable telephone number for specifying the user) and the positional information to the emergency call center **60**, storing the message information, which represents the content of the primary measure to be taken for the user, in the message storage **32** and, upon occurrence of an emergent state, outputting the message information to the speaker **10** and blinking the red lamp **8**. The message storage **32** is a memory for storing the content of the predetermined primary measure to be taken for the user upon occurrence of an emergent state to the user. The base station **40** is capable of communicating with the portable telephone **2**, and the exchange station **50** is a telephone exchange for communication with the base station **40** and so forth. The base station **40** and the emergency call center **60** are connected to each other via a telephone line.

FIG. **3** is a functional block diagram of the emergency call center included in FIG. **1**. The emergency call center **60** receives the user ID and the positional information from the portable telephone **2** and displays the individual information relative to the user of the portable telephone **2** to thereby notify the user about the content of the necessary measure to be taken, and further calculates the exact position of the user with correction of the positional information of the user on the basis of the correcting information obtained from the DGPS reference station **90**, then displays the map of the vicinity around the position, and makes telephone contact with the hospital **130** or the fire station **140** for a request of dispatch to the user.

The emergency call center **60** comprises an emergency message receiver/transmitter **61**, a microphone **62**, a speaker **64**, a locating processor **66**, a data link receiver **68**, a data formatter **70**, a differential data processor **72**, a system control computer **74**, an individual information database **76**, a map information database **78** and a display device **80**. The emergency message receiver/transmitter **61** receives, via a telephone line or the like, the emergency message including the user ID and the positional information, then outputs the positional information to the locating processor **66** while outputting the user ID to the system control computer **74**, and transmits to the telephone line the audio signal input from the microphone **62**, and further outputs the audio signal to the speaker **64**.

The microphone **62** inputs the audio signal, and the speaker **64** outputs the audio signal. The locating processor **66** inputs the positional error (correction latitude, correction longitude) obtained from the differential data processor **72**, then corrects the positional information of the user and calculates the exact positional information. The data link receiver **68** receives the positional correcting signal transmitted from the DGPS reference station **90** via an exclusive line or the like. The data formatter **70** checks the validity of the formatted correcting signal and extracts the correcting information therefrom. The differential data processor **72** receives the positional correcting information from the data formatter **70** and then calculates the positional error.

The system control computer **74** inputs the user ID from the emergency message receiver/transmitter **61** while inputting the positional information from the locating processor **66**, then searches the individual information database **76** and displays the retrieved individual information of the user on the display device **80**. The computer **74** further searches the map information database **78** and displays the retrieved map information inclusive of the user's position on the display device **80**. The individual information database **76** is a database file to store the user's individual information required for instruction of a secondary measure for the user, and the individual information is composed of the user's clinical record for example. The map information database **78** is a database file to store the map information. And the display device **80** serves to display the individual information or the map thereon.

FIG. **4** is a functional block diagram of the DGPS reference station included in FIG. **1**. The DGPS reference station **90** is a fixed station which is positionally known and generates a correcting signal out of the known positional information and the calculated positional information obtained on the basis of the signals from the GPS satellites **120**. This station **90** has a GPS antenna **92**, a GPS receiver **96**, a locating processor **98**, a reference-station position signal generator **100**, a correcting signal generator **102**, a data formatter **106**, a modulator **108** and a data link transmitter **110**.

The GPS antenna **92** is employed for receiving the signals from the GPS satellites **120**. The GPS receiver **96** demodulates the signal of the channel of the specific GPS satellite **120** out of the entire signals received by the GPS antenna **92**. The locating processor **98** calculates the position on the basis of the signals from three or more GPS satellites **120**, and then outputs positional information (latitude and longitude). Using the DGPS reference station **90** here is grounded on the following reason. The positional information obtained by the GPS includes an error of 100 m or so due to satellite clock error a, satellite orbit error b, ionospheric delay error c, tropospheric delay error d, receiver noise e, multi-path f and selective usability g. If any error of such order is existent, the user might not be found promptly when an ambulance or the like is dispatched to the user. Therefore, a positional correction is executed on the basis of the correcting signal obtained from the DGPS reference station **90**, whereby the calculated user's position is corrected within an error range of 10 m or so.

The reference-station position signal generator **100** outputs known positional information of the reference station, and the correcting signal generator **102** calculates a correcting signal (e.g., with regard to the errors a–g) on the basis of the positional information obtained from the locating processor **98** and the positional information from the reference station. The data formatter **106** is employed for formatting the correcting signal in a predetermined format, and the modulator **108** modulates the formatted correcting signal into a modem signal or the like. And the data link transmitter **110** transmits the modulated correcting signal to an analog exclusive line (e.g., TELNET, FM multiplexer, etc.).

FIG. **5** is a functional block diagram of the GPS satellite included in FIG. **1**. The GPS (Global Positioning System) is a locating system developed principally by the U.S. Forces, wherein a total of twenty-four GPS satellites **120** are employed with six orbital planes under conditions of an altitude of approximately 20,000 km, a period of 12 hours and an orbital inclination of 55 degrees. Each GPS satellite **120** has a 90° phase difference generator **122**, mixers **124**, **126**, **128**, **130** and **136**, a synthesizer **132**, an electronic switch **134** and a transmitter **138**.

A signal from the GPS satellite **120** is modulated through spectrum spread in PN series, and two-frequency waves of 1575.42 MHz (L1 carrier) and 1227.6 MHz (L2 carrier) are emitted. In the PN series for such spectrum spread, there are prepared P code (Precision Code) and C/A code (Coarse Acquisition Code). The P code has a chip rate of 10.23 Mb/s and a period of one week, wherein L1 and L2 are both modulated. Meanwhile the C/A code has a chip rate of 1.023 Mb/s and a period of about one second, wherein L2 alone is used for transmission.

FIG. **6**A to FIG. **6**D relates to an exemplary format of a correcting signal. FIG. **6**A shows an RDBS transmission data format composed of 104 bits and divided into four blocks **1**–**4**, where each block is composed of 26 bits. As shown in FIG. **6**B, block **1** represents program ID, block **2** represents the contents of data services, and blocks **3** and **4** represent the detailed contents of the services. In this embodiment, Emergency call system is set in block **2** as shown in FIG. **6**C for example, and a correcting signal is set in blocks **3** and **4** as shown in FIG. **6**D. The reason for adoption of such RDBS transmission data format resides in enhancing the maintainability of the emergency call system.

Hereinafter the operation of the emergency call system in FIG. **1** will be described in detail below.

(a) Operation of Portable Telephone **2**

FIG. **7** is a flowchart showing a processing routine of the portable telephone. When going out, the user carries his portable telephone **2** with him. Upon occurrence of any emergent state such as a sudden attack of illness or the like, the user depresses the emergency call button **14**. At step **S2**, the 3-second holding circuit **28** activates an emergent state detection signal after a lapse of three seconds or more from depression of the emergency call button **14**.

When the emergent state detection signal is thus activated, the main controller **30** blinks the red lamp **8** at step **S4**, whereby occurrence of an emergent state to the user is recognized also by persons around the user, so that the necessary primary measure can be taken exactly. Subsequently at step **S6**, the main controller **30** transmits the dial number of the emergency call center **60**, which is stored previously in a memory or the like, to the base station **40** via the TDMA control circuit **20**, the RF circuit **18** and the antenna **6**. Then, in response to the received dial number, the base station **40** terminates the same at the emergency call center **60** via the exchange station **50**.

Meanwhile the GPS antenna **4** always keeps receiving the signals (L1 carrier and L2 carrier) from the transmitter **138** of the GPS satellite **120**, and outputs the received signals to the locating processor **26**. Subsequently the locating processor **26** demodulates the signal of the L2 carrier channel from the GPS satellite **120** by using the same PN series as in the transmitter, and compares the hour in the receiver and the state of the received PN series to thereby measure the propagation time and locate the position, and then outputs the positional information to the main controller **30**.

At step **S8**, the main controller **30** makes a decision as to whether a reply (off-hook) is received or not from the emergency call center **60**. And if the result of this decision is YES, the operation proceeds to step **S10**. However, if the above result is NO, the operation remains at step **S8** to wait until a reply is input. Then at step **S10**, the main controller **30** reads out the message, which corresponds to the content of the primary measure to be taken for the user, from the message storage **32** and, after converting the message into analog signal by the audio processor **22**, outputs the same to the speaker **10**.

The message stored in the message storage **32** is a specific one particular to the individual user and written therein by

the main controller **30** in accordance with an instruction from the emergency call center **60**. The user himself or some person around him takes the primary measure in accordance with the message output from the speaker **10**. At step S12, the main controller **30** transmits the emergency information composed of the positional information and user ID such as portable telephone number stored previously in the memory, to the base station **40** via the TDMA control circuit **20**, the RF circuit **18** and the antenna **6**. Then, in response to the received positional information and user ID, the base station **40** transmits the same to the emergency call center **60** via the exchange station **50**.

Upon reception of the positional information and the user ID, as will be described later, the emergency call center **60** makes an arrangement for dispatch of an ambulance or the like from the hospital **130** or the fire station **140** according to the individual information of the user based on the user ID, and notifies the portable telephone **2** of the current situation and the content of the secondary measure to be taken. Thereafter at step S14, the information from the emergency call center **60** is input to the audio processor **22** via the antenna **6**, the RF circuit **18** and the TDMA control circuit **20**. The audio processor **22** extends the audio signal in compliance with an instruction from the main controller **30** and then outputs the same to the speaker **10**. Subsequently the information received from the emergency call center **60** is outputted from the speaker **10**, and the user complies with the information.

(b) Operation of DGPS Reference Station **90**

The GPS antenna **92** always keeps receiving the signals from the GPS satellites **120** and outputs the same to the GPS receiver **96**. Subsequently the GPS receiver **96** demodulates the signal of the L2 carrier channel from the GPS satellite **120** by using the same PN series as in the transmitter. The locating processor **98** compares the hour in the receiver and the state of the received PN series to thereby measure the propagation time and locate the position, and then outputs the positional information to the correcting signal generator **102**.

The reference-station position signal generator **100** reads out the fixed positional information of the DGPS reference station **90** from an unshown memory and outputs the information to the correcting signal generator **102**. Then the correcting signal generator **102** generates position correcting signals (e.g., aforementioned signals a–g) on the basis of the positional information obtained from the locating processor **98** and the positional information from the reference-station position signal generator **100**, and outputs the correcting signals to the data formatter **106**.

Subsequently the data formatter **106** edits the correcting signals in a predetermined format such as the one shown in FIGS. 6A–6D and outputs the same to the modulator **108**. Then the modulator **108** modulates the input signal into a modem signal for example and outputs the same to the data link transmitter **110**. Thereafter the data link transmitter **110** transmits the modem signal to the emergency call center **60** every fixed time via an analog exclusive line or the like.

(c) Operation of Emergency Call Center **60**

FIG. **8** is a flowchart showing a processing routine of the emergency call center. At step S20, the emergency message receiver/transmitter **61** makes a decision as to whether a terminating call has arrived from the portable telephone **2**. And if the result of this decision is YES, the operation proceeds to step S22, where the emergency message receiver/transmitter **61** sends a reply (off-hook) to the portable telephone **2**. The emergency message receiver/transmitter **61** receives the user ID and the positional information at step S24, and then outputs the user ID to the system control computer **74** while outputting the positional information to the locating processor **66**.

The locating processor **66** receives the positional information at step S24. Thereafter at step S26, the data link receiver **68** receives the correcting signal via an analog exclusive line or the like and then outputs the signal to the data formatter **70**. Subsequently the data formatter **70** checks the data validity (CRC check or check if "Emergency call system" being set) and, after confirming that the data are valid, extracts the formatted correcting signals and outputs the same to the differential data processor **72**.

At step S28, the differential data processor **72** calculates the correction quantities of latitude and longitude on the basis of the correcting signals and then outputs the same to the locating processor **66**. Subsequently the locating processor **66** executes a positional correction of the portable telephone **2** on the basis of the positional information of the portable telephone **2** and the correction quantities obtained from the differential data processor **72**, and outputs the corrected positional information to the system control computer **74**. The corrected positional information is within an error range of 10 m or so.

At step S30, the system control computer **74** searches the map information database **78** according to the corrected positional information to thereby retrieve the map information of the vicinity including the positional information, and then outputs the retrieved map information to the display device **80**. Further at step S32, the system control computer **74** searches the individual information database **76** according to the user ID to thereby retrieve the individual information of the user, and then outputs the same to the display device **80**.

Referring to the individual information and the map information displayed on the display device **80**, a diagnoser requests the hospital **130** or the fire station **140** to dispatch an ambulance and inputs the emergency message, which represents the current situation and the secondary measure to be taken, from the microphone **62** so as to notify the user of such message. At step S34, the emergency message receiver/transmitter **61** receives the input audio signal from the microphone **62** and then transmits the emergency message to the portable telephone **2** via the exchange station **50** and the base station **40**.

Due to execution of the above processing routine, an ambulance or the like is dispatched to the user. In this case, since the positional information is within an error range of 10 m, the user can be found with ease so that the required secondary measure can be taken promptly.

According to the present invention, as described hereinabove, positional information is transmitted to the emergency call center if the emergency switch means is actuated upon occurrence of an emergent state. Consequently, even when the user carrying the emergency call mobile station with him is out, it becomes possible to specify his position to thereby execute a prompt necessary measure for the user without fail.

What is claimed is:

1. An emergency call system having an emergency call mobile station carried by each user to transmit emergency information and an emergency call center to receive the emergency information, said system comprising:

locating means incorporated in said emergency call mobile station for generating first positional information by detecting a position of said mobile station;

emergency switch means incorporated in said emergency call mobile station;

emergent state detection means incorporated in said emergency call mobile station for outputting an emergent state detection signal when said emergency switch means is in its on-state;

transmitting means incorporated in said emergency call mobile station for transmitting the emergency information to said emergency call center in response to the emergent state detection signal, said emergency information including the first positional information and an identification information to specify the user of said emergency call mobile station;

a map information database incorporated in said emergency call center to store map information;

an individual information database incorporated in said emergency call center to store individual information relative to the user which includes the user's clinical record;

emergency information receiving means incorporated in said emergency call center for receiving the emergency information;

display means incorporated in said emergency call center for displaying information thereon;

position display means incorporated in said emergency call center for displaying the map information of the vicinity around the position of said emergency call mobile station on said display means by referring to said map information database on the basis of the first positional information included in the emergency information;

individual information display means incorporated in said emergency call center for displaying the individual information of the user on said display means by referring to said individual information database on the basis of the identification information included in the emergency information;

message storage means incorporated in said emergency call mobile station for storing a voice message to be provided to a user in advance for a first emergency measure;

a speaker incorporated in said emergency call mobile station for emitting an audio output; and

message output means incorporated in said emergency call mobile station for outputting the voice message to said speaker in response to the emergent state detection signal.

2. The emergency call system according to claim **1**, wherein said emergent state detection means outputs the emergent state detection signal when said emergency switch means is turned on for a predetermined time.

3. The emergency call system according to claim **1**, further comprising alarm means incorporated in said emergency call mobile station to notify the outside about occurrence of an emergent state.

4. The emergency call system according to claim **1**, wherein said locating means is so formed as to locate the position on the basis of signals from GPS satellites, and said system further comprises position correcting means incorporated in said emergency call center to correct the first positional information on the basis of the correcting information which is calculated by a differential GPS reference station on the basis of both second positional information based on the signals from the GPS satellites and known third positional information.

5. The emergency call system according to claim **1**, wherein said transmitting means performs transmission to said emergency call center in conformity with the same communication procedure as that of a cellular telephone.

6. An emergency call system according to claim **1**, further comprising:

second transmitting means incorporated in said emergency call center for transmitting a second voice message concerning second measures for the user generated in response to the individual information stored in said individual information database to said emergency call mobile station; and

receiving means incorporated in said emergency call mobile station for receiving the second voice message.

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